Prince Edward Island

Department of the Environment

1990 ANNUAL REPORT

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Department of the Environment

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Gilbert R. Clements
Minister

Kenneth F. DesRoches
Deputy Minister

Printed on 100% recycled paper

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The Honorable Marion Reid
Lieutenant Governor
Province of Prince Edward Island

May It Please Your Honour:

I have the honour to submit herewith the Annual Report of the Department of the Environment for the period January 1 to December 31, 1990.

Your obedient servant,

Gilbert R. Clements

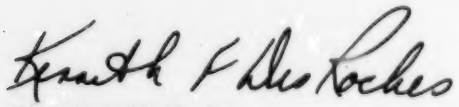
Gilbert R. Clements
Minister

The Honorable Gilbert R. Clements
Minister
Department of the Environment
Province of Prince Edward Island

Sir:

It is my pleasure and honor to submit to you the Annual Report of the Department of the Environment for the year ended December 31, 1990.

Respectfully submitted,



Kenneth F. DesRoches
Deputy Minister

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PLANNING AND ADMINISTRATION BRANCH

The Planning and Administration Branch is responsible for coordinating the Department's strategic planning and for its financial and personnel management. Key duties include the administration of programs under the P.E.I. Conservation Strategy, secretarial support for various advisory groups and the provision of public information about the departmental activities. An important function of the Branch is to co-ordinate the environmental impact assessment process.

The following are program and activity highlights of the Branch in the past year:

Round Table On Environment and Economy

The P.E.I. Round Table on Environment and Economy is chaired by Hon. Gilbert R. Clements and includes representatives from the primary sectors, environmental organizations, nature people, the financial and business sectors as well as local government and the academic community.

The idea behind the Round Table is to bring together a cross section of interests to discuss the relationship between environment and economy and to advise government on how their objectives can be integrated.

During the past year the Round Table met on four occasions. Much of the discussions focused on environmental education and sustainable development. In October the Round Table brought together representatives from the education system to review the current status of environmental education in Island schools and to discuss a report prepared by Environmental Associates Ltd. As a result of this session held in Montague, a sub-committee was formed to develop recommendations for government.

In 1990 the Round Table completed a report on sustainable development in P.E.I. This report, prepared in co-operation with provincial departments, is an effort to define sustainable development on a sector by sector basis. The report should prove useful as a discussion paper for generating greater public awareness about sustainable development. The Round Table has conveyed this report to the Department of the Environment with a recommendation that it take steps to have it distributed and discussed both within and without government.

In the year ahead the P.E.I. Round Table intends to examine the Report of the Royal Commission on the Land and has made a commitment to work with the National Round Table on a tourism sector dialogue.

Environmental Advisory Council

The role of the Environmental Advisory Council is set out in Section 4 of the Environmental Protection Act. The essential purpose of the Council is to serve as an advisory board to the Minister. The Planning and Administration Branch provides secretariat support to the 13 member Council. The Council typically meets on a monthly basis to consider and advise on a broad range of environmental issues. More detailed information regarding the Council's activities for the past year is contained in its Annual Report.

Environmental Coordinating Committee

The Branch also provides secretariat support to the Environmental Coordinating Committee. The mandate for this interdepartmental Committee of Deputy Ministers is described in Section 5 of the Environmental Protection Act. A primary objective is to ensure communication and coordinated planning between provincial government departments in respect of environmental issues. The Committee is chaired by the Deputy Minister of the Environment. Since it was established in April 1989 by the Lieutenant Governor in Council, the Committee has generally met on a bimonthly basis to discuss and exchange information on a variety of Provincial environmental issues.

"Our Island Environment"

A highlight of 1990 was the Department's hosting of "Our Island Environment" in February. This one and a half day conference attracted over 250 participants from across the province. During the conference delegates participated in a dozen workshops addressing a variety of environmental issues and received presentations by Dr. Pat Lane, Dr. Louis LaPierre and Dr. Kathy Martin.

In the spring a post-conference report was published and distributed to all participants. In it the conclusions reached in each of the workshops are cited.

Based on the success of this Conference the Department has approached the Advisory Boards of the Regional Services Centres with the idea of holding smaller regional workshops in 1991 to focus on local environmental issues.

Environmental Impact Assessment

The purpose of the Environmental Impact Assessment process is to provide an effective planning tool for predicting the potential environmental consequences of developments and their acceptability of likely environmental implications, before commitments to proceed with those plans are made.

While the legislative authority requiring environmental impact assessment is provided for in Section 9 of the Environmental Protection Act, interim guidelines in the form of a policy are used to ensure compliance with the Act.

In addition to establishing steps and procedures, the interim guidelines provide a list of development classifications considered to be undertakings which require written approval by the Minister before they can proceed. It is intended that these guidelines will eventually become regulations.

During the past year approximately 40 written proposals were filed. While most were processed and approvals granted, some are still under review and some were withdrawn by the proponent for various reasons.

The Federal Environmental Assessment Review process applies to many of the projects that are reviewed within the provincial process. New federal legislation in this area is presently being considered by the House of Commons. Since there are, at times overlaps in applying the federal and provincial process, both levels of government are committed to co-operative efforts in the review processes.

The major projects considered to date under the process include the expansion of Diagnostic Chemicals in the West Royalty Industrial Park and the new McCain Food Processing Facility at Carleton Siding. The major outstanding projects still under consideration are the plans for the Energy Corporation for a Co-generation Facility, the Expansion of Cavendish Farms at New Annan, the proposal for Fish Processing Operation at Brudenell and the Extraction of Peat at the Miscouche Bog presently under consideration by an independent panel.

The assessment section was also responsible for coordinating the Department of the Environment reviews and comments on twenty subdivisions of over 5 lots. These subdivisions were submitted for approval to the Department of Community & Cultural Affairs or to Municipalities by developers.

Numerous inquiries from developers, the public and municipal authorities were also received and addressed.

A summary of the undertakings filed under the assessment process and their status are as follows:

Project	Proposal Received	Decision Sent	Comments
Salt Storage (East Royalty)	Oct. 26/89	Nov. 27/90	Approved
Diagnostic Chemicals	Nov. 23/89	Feb. 19/90	Approved
Mussel & Mud Harvesting	Dec. 04/89	Mar. 14/90	Approved
Parkdale Cogeneration Plant	Dec. 18/89	Awaiting additional information	
Summerside Utility Plant	Dec. 21/89	Awaiting additional information	
Smoked Eel Processing (Ebenezer)	Jan. 05/90	Apr. 09/90	Approved
Poultry Processing (Victoria)	Jan. 09/90	Full EIA required, project withdrawn	
Ch'town Perimeter Highway	Jan. 12/90	May 24/90	Approved
Chips & Cords Inc.	Feb. 06/90	Full EIA required, project withdrawn	
Valleyfield Poultry	Feb. 07/90	Mar. 14/90	Approved
North River Broiler Operation	Feb. 19/90	Apr. 08/90	Approved
Peat Moss (Miscouche)	Feb. 27/90	Panel appointed to review project	
Chips & Cords Inc.	Mar. 14/90	Apr. 06/90	Approved
Oil/Water Separator (Summerside)	Mar. 21/90	Apr. 24/90	Approved
Glen William Poultry	Mar. 28/90	Apr. 17/90	Approved
West Shore Fisheries	Apr. 05/90	Apr. 17/90	Approved
Fish Processing (Brudenell)	Apr. 06/90	Proposal withdrawn	
McCain Frozen Food	Apr. 10/90	May 14/90	Approved
Pisquid Bridge	Apr. 11/90	June 08/90	Approved
Alpine Ski Hill (Brookvale)	Apr. 12/90	May 07/90	Approved
Lobster Processing (Brudenell)	Apr. 28/90	Apr. 30/90	Approved
Dover Fish Farm	Apr. 13/90	May 15/90	Approved
Cavendish Farms Expansion	May 15/90	Full EIA required	
Apple Cider Processing	June 05/90	June 28/90	Approved
Bonshaw Bridge	June 11/90	Under review	
Hog Feeder Barn (Harrington)	July 10/90	Aug. 09/90	Approved
Ch'town Plant Topping Unit	June 13/90	Under review	
Brudenell Fish Processing	Aug. 13/90	Additional information required	
Selkirk Road	Aug. 13/90	Aug. 27/90	Approved
Borden-Sherbrooke Trans Line	Sept. 4/90	Oct. 10/90	Approved
Potato Services Bldg (Kensington)	Oct. 05/90	Additional information required	
Brookvale Hatchery Fish Processing	Oct. 31/90	Nov. 13/90	Approved

P.E.I. Conservation Strategy

The primary goal of the Conservation Strategy is to ensure that the concept of sustainable development is an integral part of all activities taking place in P.E.I., whether initiated through government, non-government organizations or the private sector.

The Strategy states that all government departments have a responsibility to ensure that the concept of sustainability is incorporated into their activities. The Deputy Minister of the Department coordinates government activities in support of the Strategy through the Environmental Coordinating Committee.

Conservation Strategy activities for the past year are summarized as follows:

1. Agricultural Video

A video on soil erosion highlighting its downstream effects, research currently being conducted and techniques to reduce the problem was completed in conjunction with Agriculture Canada and released during Soil Conservation Week. The video was shown to a variety of organizations and classes over the year.

2. Highway/Erosion Workshop

A workshop was co-sponsored with the Dept. of Transportation & Public Works. The head of the Environmental Section of the Ontario Ministry of Transport attended to outline the operation and effectiveness of this section and its role in mediating the effects of highway construction and maintenance activities on the environment.

3. Scenic Heritage Roads

No new roads were designated in 1990. Discussions aimed at establishing additional designations were initiated with several communities. Management plans for these roads were initiated.

4. Natural Areas Protection Act

The development of an Environmental Areas Plan, of which the Natural Areas Protection Act would be a component was initiated.

This Plan will include properties managed by several government agencies as well as those owned by non-government organizations and individual Islanders. Detailed management plans for most sites initially designated under this Act were developed.

5. Island Conservation Assistance Program

A key recommendation of the Conservation Strategy was the establishment of a fund to support environmentally based community projects.

In conjunction with the fund, a program to acquire and maintain equipment for use in projects in subsequent seasons/years was established. During 1990, 20 community projects employing seasonal staff of 94 individuals (mostly students) were hired.

A summary of projects follows:

Organization	No of Employees	Location	Activities
Souris Industrial Commission	3	Souris Causeway	Installation of sand dune enhancement protection devices
Souris Branch - P.E.I. Wildlife Federation	7	Big Brook/Grovepine tributaries of Fortune River	Stream & riparian zone
" "	4	North Lake Brook	Riparian zone silviculture
St. Margarets Parish	5	Bear River	Stream enhancement, silviculture work on woodlot next to Church
Montague Watershed Enhancement Co-op/Town of Montague/Southern Kings Branch - PEI Wildlife Fed.	24	Montague & Valleyfield Rivers	Watershed management of Montague/Valleyfield Watershed
Morell River Mgmt Co-op	11	Morell River	Watershed management of Morell River Operation of semi-natural rearing facility & development of interpretive trail
Belle River Environmental Protection Association	2	Belle River	Stream enhancement
Ducks Unlimited	5	Kings/Queens Counties	Marsh research and management
PEI Fly Fishers Association	13	West River	Watershed management
Central Queens Branch - PEI Wildlife Federation	3	West River /stream enhancement	Operation of fish counting fence
University of P.E.I.	2	West River	Creel census
North Queens Branch - PEI Wildlife Federation	3	Wheatley River/ Hunter River	Stream enhancement
Island Nature Trust	8	Province-wide	Biological inventory of natural areas. Land owner contact & stewardship programs
Charlottetown Area Development Corporation	2	Charlottetown & surrounding communities	Municipal tree inventory
East Prince Branch - PEI Wildlife Federation	3	Dunk River	Watershed enhancement
O'Leary Branch - PEI Wildlife Federation	9	Trout and Mill Rivers	Stream enhancement-establishment of counting fence to monitor fish population movements
West Prince Bird Conservatory	1	Portage	Development of waterfowl habitat & public education about waterfowl & waterfowl habitat
West Prince Chamber of Commerce	2	Mill River	Stream Enhancement
Kinkora Area Business Comm.	1	Dunk River	Trail development & public education of riparian zone
Alexandra Community Council	2	Alexandra	Development of conservation zone along a stream & associated marsh

Communications Component

The part-time position of Communications Officer was made full-time in 1990 and the responsibilities of this position include the following: the development of a departmental Communications Strategy; participation in the co-ordination of the Waste Reduction Program; responding to public inquiries for environmental information; the public relations aspects of the Canada/P.E.I. Water Management Agreement; the co-ordination and production of press releases, advertisements, media backgrounders, information kits and publications; co-chairing the Environment Week committee; participating in the Communications Committee of the Atlantic Provinces Environment Departments; assisting in the co-ordination of wildlife week activities; and co-ordinating public speaking engagements.

Communications Strategy

Special emphasis was placed on the development of a Communications Strategy and Policies for the Department which consists of an assessment of internal and external communications as well as future goals and action plans. Areas covered include media relations, special event co-ordination, overall visual image of publications and advertisements (incorporating the use of the new logo, recycled paper, and double-sided printing), public speaking engagements, and the co-ordination of inter-departmental communication. The Strategy should be fully operational in 1991.

Departmental Logo

During the Our Island Environment Conference, Hon. Gilbert R. Clements unveiled the winning entry in the Department of the Environment Logo Contest. The official logo features a three-banded rainbow representing the three counties of Prince Edward Island and incorporates the three colors of the provincial crest. Also featured is a seagull representing air, land, water and wildlife. The prominent positioning of the bird in mid-flight in the foreground of the logo represents the Department's mission to manage, protect and enhance the environment.

New Look for Publications

Publications produced in 1990 took on a new look in keeping with the principles of reducing, reusing, recovering and recycling. All publications are now printed on both sides of recycled paper and feature the new departmental logo. Newly designed letterhead and envelopes also feature the logo and are printed on 100% recycled paper.

ENVIRONMENTAL PROTECTION BRANCH

The Environmental Protection Branch administers a range of programs and legislation which are designed to control and reduce various forms of contamination in the Province. This includes: air quality, derelict vehicles, excavation pits, hazardous wastes, litter, beverage containers, solid waste management, subdivision assessment, unsightly properties, utility operation, wastewater discharge and special projects.

On March 1, 1990, the Litter Control Regulations were enacted to replace the Beverage Container Regulations. These regulations will help to reduce the amount of litter which is generated in the province. A litter survey was conducted in the summer of 1990 and this proved that the major source of litter is fast food packaging.

In the summer of 1990 a student was employed to complete a study on solid waste management focusing particularly on environmental instruments which could be utilized to create incentives for the 4 R's or to develop constraints to waste generation.

The Branch coordinated a "Paper Save" recycling project within selected provincial government offices. Acceptable waste paper materials were collected during the summer and sent for recycling at the Synpro plant in Parkdale. The amount of paper collected is summarized in the following table.

PAPER SAVE '90
COLLECTION PERIOD JUNE 5 - AUGUST 31, 1990

JONES BUILDING:	
Island Information Services	1,372 lbs.
3rd Floor - Environment & Community & Cultural Affairs	905 lbs.
3 QUEEN STREET	
1st Floor	604 lbs.
2nd Floor (Housing)	770 lbs.
3rd Floor (Fish & Wildlife)	219 lbs.
SHAW BUILDING	
2nd Floor - Finance	1,367 lbs.
3rd Floor - Energy & Forestry	823 lbs.
5th Floor - Premier & Executive Council (July 3 - August 31)	344 lbs.
TOTAL	**6,404 lbs.**

The Branch is promoting the Paper Save Program and expects to have it operational throughout all buildings in the Provincial Administration Complex during the coming year.

The wastewater quality at the Northeast Energy Services Ltd. plant at New Annan continues to show good results. The plant treats the wastes from the Cavendish Farms food processing plant and the wastewater effluent meets the federal requirements for suspended solids and biological oxygen demand. A major sludge removal project was undertaken at the waste treatment plant in 1990 and this resulted in an increase in the operating costs for the plant. Branch staff were also extensively involved in the review of plans associated with the proposed expansion of the Cavendish Farms Plant.

Branch staff were also extensively involved in the review of the wastewater treatment system at the new McCain Foods Plant in Carleton. This plant is designed to treat the waste for the equivalent of a population of 2,000,000 people.

The Environmental Protection Branch was also involved in some major investigations during the year. These included wastewater discharges from a fish processing facility at Brudenell and a liquid manure storage system at Richmond. Branch staff also participated in a project to assess private sewage disposal systems in the Community of Miminegash.

Excavation Pit Program

Responsibility for the excavation pit program was shifted from the Marine Environment Section to the Environmental Protection Branch when the position of Controller of Licenses was established in a special arrangement with Treasury Board and the Department of Transportation & Public Works. New regulations have been developed in concert with the industry and will become law on February 1, 1991. The position of Controller of Licenses has now been vacated with the retirement of the incumbent and the position is being reclassified as an environment officer position to be filled, budget permitting, in the next fiscal year. In addition, responsibility for the monitoring of excavation pits will be assigned in the eastern and western parts of the province to the environment officers who serve these areas.

Intergovernmental Cooperation

The Branch is represented on a variety of provincial, regional and national committees/working groups which address issues for which the Branch is responsible.

Air Quality, Hazardous Waste, Regional Services Section

In 1990, the Environmental Protection Branch was reorganized. Two positions were created to provide regional services for the Department. Late in 1990, Kevin Curley moved to the Southern Queens & Kings Regional Services Centre and assumed duties as the Environment Officer, East. Due to budget restraints, staffing of the Environment Officer, West position was postponed. This position will be located at the West Prince Regional Services Centre.

This section responded to about 500 general information requests in 1990.

Air Quality

A variety of air quality issues were addressed by this section.

International or global issues are gaining prominence. This section represented the province on committees addressing global warming, stratospheric ozone layer, acid rain and ground level ozone.

In order to keep pace with new developments both in technology and regulatory considerations, this section participated in committee activities under the Canadian Council of Ministers of the Environment. P.E.I. was represented as the provincial co-chair of the Federal-Provincial Advisory Committee on Air Quality. National and regional committees were active in addressing fuel volatility, volatile organic compounds, nitrogen oxides, recycling and recovery of CFCs, sulphur dioxide and vehicle emissions. The province was represented by this section on several other committees as a corresponding member without actively participating.

Air quality monitoring continued under two federal-provincial programs - the National Air Pollution Surveillance program (N.A.P.S.) and the Long Range Transport of Air Pollutants program (L.R.T.A.P., chiefly concerned with acid rain).

The Charlottetown NAPS Station regularly samples sulphur dioxide, lead and particulate matter in the ambient air and provides this information to Environment Canada's national air quality monitoring program. Precipitation samples are collected to monitor the long term changes in acid rain. Late in 1990, the acid rain sampler was moved from Beach Grove to Cardigan. Recent construction and development in the Beach Grove area affected the samples; the Cardigan location is a more representative precipitation sampling site.

Emissions of sulphur dioxide (SO2) have increased in recent years but P.E.I. is still below the 1994 limit of 5,000 tonnes as required by the Canada-Prince Edward Island Sulphur Dioxide Reduction Agreement. Discussions related to an acid rain agreement between Canada and the United States may require a commitment to SO2 reductions beyond 1994.

The CCME endorsed the NOx-VOC Management Plan which outlines many measures to control oxidants and reduce ground level ozone problems. In anticipation of this plan the P.E.I. Public Utilities Commission restricted the volatility of gasoline during the summer months. P.E.I. participated in the development of a Code of Practice for Vapour Control in Gasoline Distribution Networks. Discussions were initiated with the Highway Safety Division to include vehicle emission control systems as part of the annual safety inspection.

Asphalt plants are required to have a Certificate of Approval from this Department. This section was responsible for issuing the permits and inspecting both mobile and permanent asphalt plants.

About 250 complaints were investigated by this section in 1990. These related primarily to local air quality issues such as noise, odour, asphalt plants, the Scott Mill in Abercrombie, N.S., soot, open burning, wood smoke and incinerators.

This section responded to a variety of general information requests on topics such as air pollution, acid rain, ozone layer, CFCs and the greenhouse effect.

Hazardous Waste

In 1990, advice was provided to over 330 clients regarding waste disposal options. Inquiries ranged from the disposal of household products such as paint, pesticides or batteries, to lists of surplus chemicals from laboratories and industrial wastes. A number of investigations of the waste disposal practices of businesses were conducted by this section in response to public complaints or inquiries.

On several occasions, this section facilitated the exchange of chemicals between people that wanted to dispose of them, and people interested in using the material. More individuals and businesses are interested in following environment-friendly practices. Inquiries about recycling and non-toxic alternatives to hazardous products increased dramatically.

The Department of the Environment cooperated with several other government, industry and public interest groups in the first Pesticide Collection Day. This project was highly successful in terms of the quantity of material collected. Over 150 - 45 gallon drums of pesticides were shipped to a chemical disposal company for safe disposal. Some of the products dated from the 1940's. New products that were still useful were passed on to be used up for their intended purpose.

Specific chemicals become unstable over time, and the only method of disposal is by detonation. This section coordinated the disposal of a small quantity of unstable chemicals by the RCMP Explosives Disposal Unit.

This section is responsible for the regular inspection of the PCB storage site in Georgetown, owned by the P.E.I. Development Agency.

Under the Transportation of Dangerous Goods Act, this section is responsible for manifesting the transportation of hazardous wastes. Copies of waste manifests describing shipments which originate in P.E.I. are received regularly. Regular reports about hazardous waste movement are prepared for coordination by Environment Canada. More responsible waste management by P.E.I. businesses has led to increased numbers of waste manifests.

Public concern about hazardous chemicals is increasing as was evidenced by the large number of general inquiries received regarding toxic materials, PCBs, pesticides, waste manifests and household hazardous wastes.

Efforts to establish a national code of practice for biomedical waste management practices continued. All Island health care facilities are very conscious of the need for infection control and responsible waste management. Discussions were initiated regarding the options for regional services for biomedical waste disposal.

Continuing education is essential to keep pace with the rapidly changing technology. This section worked on the planning committee for the Canadian Waste Management Conference held in St. John's.

Regional Services

The plans for regional environment officers had to be altered due to budget restraints late in 1990. These positions will allow a regional approach to diverse technical activities under the mandate of the Department of the Environment. This section will have significant liaison with other departmental sections and provide a general service to the public on environmental matters.

General

In more general activities, this section participated in the Canadian Council of Ministers of the Environment meeting, Globe '90, World Food Day Planning, and judging at Science Fairs.

This section gave presentations about environmental protection topics to a number of groups, including: Beach Grove nursing home staff, Dietary Directors, O'Leary UCW, WI Convention, Glen Stewart Community School, UPEI Fairly Scientific program, Holland College environmental technology class, Minister's Environment Conference, Montague Rotary Club, UPEI Languages Class, 4H Summer Camp, Allergy & Environmental Illness Group, Grade 5 class Montague Consolidated, P.E.I. Facilities Association, P.E.I. Home Economics Association, Senior 4H Conference. Although many of these presentations did not relate to air quality or hazardous waste directly, they are an important opportunity to involve the public in environmental protection.

Activity related to environmental impact assessment increased dramatically. Assessments and proposals were reviewed for technical content related to air quality and hazardous waste issues.

Waste Management & Utilities

This section is directly responsible for the daily operations of the three regional sanitary landfill sites in Summerside, Sleepy Hollow, and Cardigan, and eight rural refuse container sites of which two are in Kings County, five in Queens County and one in Prince County.

Another thirty-one (31) community refuse disposal sites are situated across the Island serving areas of the Province not served by the landfills or the Energy from Waste Plant in Parkdale.

All thirty-one (31) of the sites are managed by Community Councils or by Community Disposal Site Committees with technical assistance and funding being provided by the department.

Two of these sites, Souris and Tignish have unique agreements between the department, the community and private contractors to provide management services at the local disposal site.

The department has constructed a new rural refuse container site at Carleton. This new container site was made necessary because of the closure of the old Carleton Disposal Site and the sale of land to McCain Foods for the construction of a new food processing facility in this area.

The regional landfill sites, the Energy from Waste Plant and the rural refuse container sites will be incorporating user pay policy sometime in early 1991.

These regional landfill sites and the Energy from Waste Plant had weigh scale platforms installed in December, 1990. These scales will be operational early in 1991 with the department charging site users a tippage fee of $20 per ton.

Approximately 56 complaints involving the use of private dumps for household garbage, manure storage, fish offal and similar environmental problems involving municipal solid waste were investigated, with most being resolved in a constructive manner.

A total of approximately 356 permits were issued to individuals under the disposal permit system for special waste treatment and or disposal at the regional landfills and community refuse disposal sites.

The section represents the department on the operating committee for the Energy from Waste Plant (EFW) located on Riverside Drive in Parkdale. The department currently pays a tippage fee of $26 per tonne of garbage treated at the Energy from Waste Plant. The steam

generated is sent to the Queen Elizabeth Hospital, Hillsborough Hospital and the Sherwood Home and displaces approximately 20,000 bbls of oil per year.

The Energy from Waste Plant serves a population of approximately 45,000 people in the greater Charlottetown area and treated some 32,000 tonnes of municipal solid waste (MSW) this year. This volume of MSW means that for almost eight (8) months of year the Energy from Waste Plant is at or near capacity of 99 tonnes per day.

On a broader scale the staff has been involved with the Energy Corporation in examining the existing waste management system on Prince Edward Island and how this system can be improved to better handle the municipal solid waste generated in the province while obtaining the maximum amount of recoverable energy through the disposal process. It is a long term goal to be able to remove the non-burnable material to better utilize the plant and appropriately treat the wastes.

In order to keep abreast of new developments, both in technology and regulatory considerations, the section represents the province on the National Waste Management Committee established by the Canadian Council of Ministers of the Environment (CCME). The section is also represented on the National Packaging Task Force whose primary goal is to reduce packaging waste and contribute to a 50% overall reduction of waste by the year 2000.

The section is committed to keeping pace with the changing technology and meeting the increased public demands to provide efficient and environmentally sound disposal methods for P.E.I.'s Municipal Solid Waste.

After evaluating the Province's current waste management situation, the Department of the Environment concluded that changes were necessary and that the time for action had come. Thus the Department developed a Waste Reduction Program for P.E.I. based on the 4R approach to waste management (REDUCE, REUSE, RECOVER and RECYCLE) were identified as necessary components of an improved system. The program which was announced by the Minister in October consists of 4 major target areas; EDUCATION, PUBLIC CONSULTATION SESSIONS, IMPROVED COMMUNITY DUMP AND LANDFILLS PROGRAM, and DISPOSAL FEES.

To implement the disposal fee system the regional landfill sites and the Energy From Waste Plant had weigh scale platforms installed in December, 1990. These scales will be operational early in 1991 with the department charging site users a tippage fee of $20 per ton commencing April 1, 1991 for all commercial and industrial refuse and April 1, 1992 for all municipal refuse. Gates and caretaker buildings will also be installed at the six rural container sites operated by the Province and site hours set for each site.

We as Islanders are all responsible for our garbage and we must choose between being part of the problem and create more garbage requiring more disposal sites; or become part of the solution and reduce the amount of garbage we produce.

Water Works & Waste Water Section

This section provides technical assistance to municipalities, industries, commercial establishments and other agencies with respect to the development, operation and maintenance of water supplies and waste treatment facilities.

Technical assistance is also provided to Building & Development Services, Department of Community & Cultural Affiars for on-site water and sewage disposal systems for individual lots and subdivision approval. In 1990 approximately 200 sites were inspected for approval of on-site servicing.

Staff responded to quite a number of requests for technical assistance concerning problems with domestic sewage disposal systems resulting in recommendations being made for repairs to upgrade or repiace the system.

In 1990 twenty-three septic tank pump truck operators were authorized for septic tank pumping and sewage sludge disposal. Staff inspected sewage disposal areas and investigated complaints of improper waste disposal.

As well, numerous complaints were investigated regarding manure storage and land application of the manure.

A regular sampling program was continued in 1990 to monitor the performance of municipal and industrial waste water treatment plants. Package treatment plants servicing tourist facilities, schools and mobile parks were also monitored. Periodic inspections of 20 municipal lagoons as well as a seasonal sampling program of the lagoons was carried out during the year.

The section is responsible for the operation and maintenance of provincially owned water supplies. These include water systems at Montague, Souris, Georgetown, North Rustico, Egmont Bay, Alberton South, Cross Roads and Beach Point. The Georgetown and North Rustico systems serve a large number of domestic as well as commercial and industrial customers. The latest figures have 143 domestic customers in Georgetown and 98 domestic customers in North Rustico. The Cross Roads system installed in 1988 presently services 39 homes in the area.

A number of plans for extension to existing water and/or waste treatment systems were submitted to the department for review and approval under the Environmental Protection Act. A total of 39 permits were issued for construction or expansion of sewer and water systems in the province. Under the Environmental Servicing Assistance Program (ESAP) $1,028,000 financial assistance was made available to a number of communities for installation of new and extension to existing water and sewer systems in built up communities. The following communities benefited from the 1990/91 program: Tignish, Sherwood, Kensington, Montague, West Royalty, East Royalty, and Cornwall.

A new position was created within this Section for a professional engineer. The position will provide technical assistance to municipalities, industry and individuals in the development, design, construction, operation and maintenance of sewerage collection, treatment and disposal systems and water distribution systems. The position will also assist in the monitoring and administration of the ESAP program, issuing of the certificate of approval for water and sewer extensions, evaluation of proposed developments with respect to on-site versus central services and field inspection of ESAP projects and the operation and maintenance of provincial utilities.

Derelict Vehicles

Approximately 2,480 vehicles were hauled to 17 storage sites by 3 provincial contractors during 1990, resulting in 2,729.31 tons of crushed vehicles being removed from provincial sites. An additional 3,150.63 tons were removed from private yards. As a result 5,879.94 tons of scrap metal were shipped to a plant near Moncton, New Brunswick for shredding and shipment to the steel mills.

Unsightly Building Program

There are 82 applications on file representing approximately 111 buildings that are marked for removal this year. The local fire departments have received notes to do the burning on 91 of these buildings, with the remaining 20 being cleaned-up by their owners. As of December 10, 1990, there have been 76 of the 111 buildings cleaned-up.

Unsightly Property Inspection

In 1990 there were approximately 60 new complaints received by the department. Inspections were carried out on these complaints and notes were sent to the owners indicating a clean-up was required. A breakdown of the complaints by County are as follows:

Kings County	17
Queens County	23
Prince County	20

Approximately 15 of these complaints have been verified completed with a number of them in various stages of working toward completion.

Clean-up Orders

There were 5 orders issued this year with one carried over from last year for a total of 6 orders. The clean-up order that was carried over from last year was completed by the owner. Of the remaining five, two were completed by the owners, one was completed by the department and two are outstanding as of December 10, 1990. Clean-up Orders by County are as follows:

Kings County	4
Queens County	2
Prince County	-

WATER RESOURCES BRANCH

Introduction

Water Resources Branch is responsible for the management, protection and enhancement of the province's groundwater, inland surface water and coastal water resources. The Branch also provides chemical and microbiological laboratory services to provincial government departments, municipalities and the public and manages programs related to shore zone sand mining.

Key areas requiring attention continue to be groundwater quality issues, groundwater protection and land use effects, environmental impact assessments, soil erosion and nutrient loss and its effect on streams and estuaries, and the need for well head protection in municipal water supplies.

In 1990, the Branch was reorganized to establish three areas of responsibility: Groundwater Protection Section responsible for groundwater quality problem investigations, underground tank management, and environmental emergency response; Resource Assessment Section, responsible for groundwater resource evaluation, water supply development and regulation, environmental assessments involving groundwater resources and groundwater programs under the Canada - P.E.I. Water Management Agreement; and Marine Environment Section, responsible for marine and estuary water quality investigations, watercourse alterations, sand mining regulation, environmental assessments involving the coastal zone or surface waters, and the Environmental Services Laboratory.

Resource Assessment Section

Water Well Program

Following extensive public consultation, the new Water Well Regulations were finalized and brought into force on April 1, 1990. These regulations include provisions for improved well construction and better controls on high capacity wells.

Statistics related to the water drilling industry in the province for 1990 are summarized below:

Well Drilling Statistics

Well Drilling Licenses Issued	14
Well Exploration Permits	24
Restricted areas	9
Well Driller Reports Received	830
Abandoned Wells Reported	78
Abandoned Wells Plugged	29

Municipalities, consultants and private industries were given technical assistance and support for a number of water supply projects in 1990. These included water supplies for the communities of Cornwall, and Tignish, industrial supplies at McCains Food's Limited and Aqua Health, and a water supply assessment for the Community of West Royalty. Proposals for subdivisions and industrial development proposals are reviewed by Water Resources Branch either as part of the subdivision approval process of Community and Cultural Affairs or as part of the Department of the Environment's environmental impact assessment process. These reviews include assessment of availability of suitable quality and quantity of water required for a proposed development, and assessment of potential impacts on groundwater, surface water and estuarine water resources. A total of 115 applications were reviewed during the year.

Groundwater Quality Assessment Program

This program includes sampling of municipal water supplies, schools, hospitals, senior citizens housing, industrial supplies and campgrounds and parks for bacterial and chemical analyses. This includes over 200 locations across the province. Results are forwarded to the respective water supply owners with recommendations for corrective action where necessary.

Various monitoring programs for particular contaminants are also carried out. In 1990 these included continued work on a road salt monitoring program and a nitrate monitoring program.

Canada - P.E.I. Water Management Agreement

The initial three-year agreement, worth $1,000,000 and cost shared 50/50 with Environment Canada, expired on March 31, 1990. A two-year extension for $400,000 was successfully negotiated in 1990.

Projects in progress or completed in 1990 are listed below:

Groundwater Program:

- Groundwater resources evaluations: Completion of draft reports on groundwater resource evaluations for the communities of Miminegash, Bunbury-Southport, Murray River, Cornwall, Montague, Murray Harbour, Alberton, Tignish, O'Leary, Cavendish.

- Initiation of resource evaluations for North River, Georgetown, Borden.

- Completion of a draft report on the Well Construction Pilot Project.

- A study of well field protection zone requirements.

- Continuation of the sampling program for pesticides in groundwater. - Survey of nitrate levels in private wells under different land use conditions, which will contribute to a later study of nitrates in groundwater.

Surface Water Program:

- Development of surface water use inventories in twelve watershed complexes as an aid to community groups and government agencies in planning watershed improvement projects.

- The development of a teacher's guide on surface water resource protection.

Estuary Program:

- Evaluation of estuary water quality for shellfish aquaculture in Eastern P.E.I. estuaries.

- Assessment of non-point sources of bacterial contamination in Southern Malpeque Bay.

- An assessment of the impact of the placement of a restrictive causeway in West River Estuary with a new wide span bridge.

Multi-Sectoral Program:

- An extensive water resources information program including production of three water videos, a visual display on island water resources, and a number of information brochures.

Canada - P.E.I. Water Quality Agreement

In October of 1989, Federal and Provincial Miniters of the Environment entered into an agreement to expend $180,000 per year, cost-shared 2/3 Federal, 1/3 Provincial, on water quality assessment. The objective of the Agreement is to operate a water quality assessment network in the province which will obtain scientific data on water quality, assess the state of water quality, and detect and measure changes in water quality which could inhibit the use of that water. The network plan includes groundwater, inland surface water and estuaries. P.E.I. is the first province to obtain federal concurrence to include groundwater and estuary stations in their network. The network on P.E.I. consists of 46 sampling stations in 10 major watersheds across the province. Sampling sites are presently being identified and field activities will begin in 1991.

Federal-Provincial Water Quantity Agreement

The Province and Environment Canada jointly operate a network of 9 permanent and several temporary stream gauging stations across the province. Information from these gauging stations is used to determine stream crossing requirements including bridge and culvert sizing, water allocations for irrigation or aquaculture purposes, water withdrawal impact assessments, and water budget purposes. As well the province operates 15 groundwater observation wells to monitor current and historical trends in groundwater levels.

In 1990 the province and Environment Canada began a detailed review of the various water monitoring networks on P.E.I. including stream gauging stations, quality and quantity of precipitation, surface water quanity and groundwater and estuary resources. An integrated review of this nature has never before been carried out on Prince Edward Island. Substantial changes to existing water networks in the province are envisaged.

Groundwater Protection Section

Groundwater Quality Investigations

Public demand for water well sampling continued at a very high rate in 1990. Major groundwater contamination investigations were carried out at North River, Sherwood, Cornwall and Kensington. All of these situations involved bacterial contamination of groundwater. Other major investigations involving petroleum contamination of groundwater will be discussed in a later section. A summary of all groundwater sampling activities carried out within the Water Resources Branch is given below.

Samples Collected

	1989	1990
Bacterial Analyses	6234	5624
Routine Chemistry Analyses	3189	2382
Water Quality Certificates (Mortgages)	1274	947
Detailed Chemical Analyses	1397	1250
Pesticides Analyses	516	318
Hydrocarbon Analyses	68	161
Dept. of Health Referrals	16	32

The major sources of groundwater contamination continue to be coliform bacteria, nitrates, petroleum, chlorides, iron and manganese. Following is a partial list of typical groundwater contamination investigations carried out in 1990.

Groundwater Contamination Investigations

Canoe Cove: 3 wells contaminated from surface runoff related to shallow overburden, ultraviolet lights installed;

Pembroke: one well contaminated (new construction) poor installation of pitless adapter, well reconstructed;

Montague: seven wells contaminated from road salt, new wells drilled;

Cornwall: water quality problem in Bonavista Drive area carried over from 1989;

Brudenell: one well contaminated, iron & managanese, well redrilled, special permit for location;

Red Point: one well contaminated as result of fire in boat house, water flooded well pit, problem cleared up;

Riverview Estates: 2 wells supplying trailer park, contaminated with taste & odour; wells were abandoned and new well drilled;

Brookfield: one well contaminated with bacteria, new well drilled;

Valleyfield: one well contaminated with iron and sediment problem; well reconstructed still a problem; new well drilled situation improved;

Cardigan: problem with iron and manganese reoccurred after well was drilled approximately 4 years ago; well presently has close to 300 feet of casing; bentonite seal may have let go;

Rice Point: several wells affected by surface water bacterial contamination; area problem;

Strathgartney: one well contaminated by bacteria; new septic system installed, proved to be source; system was undersized and improperly installed;

Arlington: One well contaminated from barnyard and surface runoff; well redrilled and problem did not improve since new well is buried in wet spot in barnyard;

North River: major investigation in local subdivision - Candlelight Park;

Montague: one well contaminated from road salt on Main Street; new well recommended;

Bunbury: 3 wells developed taste problems, most likely leachate from organic degradation; recommended activated charcoal filters;

Fortune: one well developed odour of rotten potatoes, well is adjacent to a controversial potato dumping and burial area (old shale pit); problem, as yet unresolved;

Appin Road: one well contaminated by bacteria; suspect septic system; problem is unresolved;

Warren Grove: three wells contaminated with bacteria, source unknown; problem cleared up;

North River: two wells contaminated with bacteria; U/V lights installed;

Kensington: Eight wells affected by sewer problems; central water installed;

Sherwood: Seven wells affected by sewer problems; central water installed;

Hunter River: One well contaminated from surface runoff; repairs made to well seal;

Fredericton: One well contaminated with bacteria; new well drilled;

Vernon River: One well was contaminated with bacteria from septic system; septic system was repaired;

Stanley Bridge: One well contaminated with bacteria; abandoned well filled;

Ferry Road: One well contaminated with bacteria; source unknown; investigation is continuing;

Hampton: Two wells contaminated with bacteria; source unknown; investigation is continuing;

Cape Egmont: One well contaminated with iron and manganese; new well drilled;

Winsloe: (Highfield Heights) Six wells contaminated with bacteria, investigation is continuing;

Kinlock: (Beacon Hill) Two wells contaminated with bacteria; appear to be unrelated; investigation is continuing;

Argyle Shore: One well contaminated with bacteria; ultraviolet light installed.

Petroleum Storage Tank Program

This program is presently in its 5th year of operation. In 1990, regulations pertaining to petroleum storage tanks were completely revised in consultation with the industry. Major revisions provide for the inclusion of above ground tanks, the use of concrete containment vaults, and the establishment of two classes of tank contractor licenses.

As in previous years, the main focus of the program was removal of unprotected steel tanks 15 years of age or older. Four-hundred and seventy-four tanks were removed in 1990 bringing to 1,543 the total number of tanks removed since the initiation of the program. Thirty-five percent of tanks removed in 1990 were classed as leakers, and extensive clean-ups were often required.

Twenty-one offences under the Petroleum Storage Tank Regulations were made ticketable offences in 1990 under the Summary Proceedings Act. Ten Summary Offence Tickets were issued in 1990 and 10 convictions were obtained.

Table 1 gives a summary of activities within the Petroleum Storage Tank Program for 1990.

Table I

Underground Petroleum Tank Program

Underground Tanks Registered		2022
New Underground Tanks Installations Inspected		125
Underground Tank Removals Inspected		474
Leaking Underground Tank Removed		167
Inventory Record Inspections		90
Galvanic Monitoring Checks		60
Licensed Level I Contractors		42
Licensed Level II Contractors		15
Summary Offence Tickets Issued/Convicted		10/10
Failure to Maintain Inventory Records	4	
Alteration by Unregistered Installers	1	
Delivery to Unregistered Tank	2	
Failure to Notify of a Spill	3	
Ministerial Orders Issued		5

Staff of the Petroleum Storage Tank Program also serve on the Environmental Emergency Response Team for the province. Staff responded to 388 spills, primarily involving petroleum products during the year. Each spill requires at least one site visit and often substantial follow-up investigation. Summaries of major spills investigated in 1990 are given below.

Parkdale: A leak approximately 23,000 litres of gasoline from a leaking underground pipeline resulted in a major clean-up. Contaminated soil was removed under pipeline and under tanks. On-site remediation is on-going with soil vapour recovery system purifying contaminated bedrock and groundwater treatment system purifying contaminated groundwater;

Bedeque: A leaking gasoline storage tank result in seven wells been contaminated. Contaminated soil was removed and an on-site groundwater treatment system is purifying contaminated groundwater wells affected were replaced with new wells;

Montague: A leaking gasoline storage tank system contaminated thirteen wells. contaminated soil was removed and a bentonite seal put over the spill area. Options for further clean-up is being looked into;

Sherwood: A clean-up from a leaking underground storage tank system involving the extensive removal of contaminated soil and bedrock. A bentonite seal was installed over the spill area. Groundwater under the spill area was found to be contaminated and because of this a nearby municipal well was shut down;

Charlottetown: A clean-up from a leaking underground petroleum tank systems involving the extensive removal of contaminated soil and then sealing the excavation. Further environmental assessment is on-going and determine the extent of the damage;

Brudenell: Two leaking petroleum storage tanks systems involving two major clean-ups;

Souris: A major clean-up occurred at a bulk plant site closure. Spillage over the years of operation was the cause of the leak. Extensive removal of contaminated soil was involved;

Morell: A clean-up from a leaking underground fuel tank involved removal of contaminated soil and a bentonite seal over the spill area;

Breadalbane: A leaking underground pipeline resulted in a major clean-up. Contaminated soil was removed to the bedrock and a bentonite seal installed over the contaminated bedrock;

Rose Valley: A leaking gasoline storage tank involved removal of contaminated soil and sealing of the excavation. Monitoring wells were drilled to determine the extent of the contamination;

Sherwood: Two leaking diesel storage tank systems on different sites involved removal of contaminated soil and the excavations been seeded;

Summerside: Leaking underground fuel oil tanks at four different sites resulted in major clean-ups. Contaminated soil was removed and each excavation was sealed with bentonite. Monitoring wells were and are being drilled to determine the extent of the contamination;

Cape Wolfe: A clean-up from a leaking underground gasoline line at a service station involving the extensive removal of contaminated soil. Recovering of gasoline is continuing via the pumping of a recovery well.

Staff were also involved in the preparation of a Hazardous Material Spill Response Plan for the province during the year.

Marine Environment Section

Estuary Water Quality Program

The Marine Environment Section carried out a number of estuary water quality investigations in 1990 both through the use of consultants and in-house staff. Descriptions of major investigations follow.

West River

In August of 1987 a new wide span bridge structure became operational in the New Dominion Causeway across the West River Estuary. Although substantial improvements in water quality were immediately evident a comprehensive assessment of those changes were undertaken. Using water quality information generated by the section, a contract was let to P. Lane & Associates Ltd. to provide the Department with a scientific evaluation of the resulting changes in the hydrodynamics, water and environmental quality of that system. A draft final report has been received and reviewed and has been returned to the consultant for the necessary changes and additions. The final report will be available early in 1991.

It is anticipated that the information generated from this work will be beneficial in evaluating the effectiveness of similar modifications to other causeway impounded estuaries on P.E.I.

Barbara Weit River

In response to recommendations contained in a study entitled "Barbara Weit Estuary, Pollution Alleviation Study" submitted to the Department in 1988, a water quality monitoring program was undertaken in that system and carried through the spring, summer and fall months of 1989 and 1990. The initial objective of this project was to evaluate water quality changes as a result of improved treatment of waste water generated by the Cavendish Farms Potato Processing Plant. In early 1990 a major expansion of the processing plant was proposed and was subsequently considered under the Department's Environmental Impact Assessment process. In order to comply with information requirements under that process a comprehensive impact statement on the various environmental aspects was required. The marine and fresh water quality data generated by this project has become the basis for the evaluation of waste treatment requirements, effluent location and projected environmental impacts.

Although certain aspects of the Environmental Impact Assessment have been received in draft form it is anticipated that final reports will be received and reviewed in February of 1991.

As part of the overall assessment of environmental conditions in the estuary a sediment coring program was undertaken by this section during the winter of 1990. This project saw twelve cores being collected along the length of the estuary from the head of tide to Webber Cove. Although final assessment of all lab results is incomplete the data does suggest substantial accumulation of highly organic sediment in certain sections of the estuary. It would appear that this is the result of many years of accumulation of organic waste from the potato processing plant.

Continuation of the water quality monitoring program through 1991 and possibly 1992 will most probably be required.

Hillsborough River

The Hillsborough River is one of the most productive oyster growing areas in the Province. In response to concerns raised in a submission to the Department by the Queens County Shellfish Association regarding water quality and other environmental conditions in the estuary a water quality monitoring program was initiated in 1989 and carried through to the fall of 1990. It is perceived by the fishermen that there has been a gradual deterioration in the quality of the water and sediments particularly during the summer months when there is some evidence of seasonal eutrophication. There is also serious suspicion on behalf of many fishermen that Hillsborough Causeway may be at least in part responsible for the alleged decline in shellfish productivity.

It is anticipated that a contract for the interpretation of the physical, chemical and biological data collected over the past two years will be awarded in early 1991. This contract will be funded under the estuary section of the Canada/P.E.I. Water Management Agreement.

North River

Seasonal eutrophication and anoxic conditions were again prevalent in the section of the North River estuary upstream of the causeway. Although conditions during July and August of 1990 were less severe than the previous summer the water body did exhibit serious dissolved oxygen deficiency and offensive odors in early August. At the request of the Department of Transportation & Public Works terms of reference were prepared by the Branch for a study to evaluate the various options to improve the currently unsatisfactory conditions in that system. The contract which will be awarded in early January, 1991 will assess such alternatives as converting the system to a totally freshwater environment and the restoration of full tidal exchange through the installation of a span bridge. The investigation will assess the impact of the various alternatives in current land and water use in the surrounding area. There will also be public consultation in the surrounding communities prior to completion of the final report and recommendations to government as to the most appropriate course of remedial action.

Eastern Estuaries (Cardigan River, Boughton River, St. Peters Bay)

With the rapid expansion of all facets of the aquaculture industry on P.E.I. the need for environmental information including the physical, chemical and biological characteristics of coastal bays and estuaries has become of foremost importance. A comprehensive monitoring program was carried out during 1988 and 1989 at Cardigan River, Boughton River and St. Peters Bay. These three systems are extensively used for mussels and to a lesser extent finfish aquaculture. This work assessed the limitations of these estuaries for aquaculture development and amassed a significant bank of data upon which future impacts can be assessed.

Copies of the final report of this study are now available to interested parties. Copies will be forwarded to the various shellfish and aquaculture associations within the province.

Wilmot River Sedimentation

A study of the sedimentation rates within the Wilmot River estuary was undertaken as a project under the Canada/P.E.I. Water Management Agreement. The project involved the collection and analysis of a series of sediment cores taken from points throughout the system. A final report entitled "Sedimentation Study in Wilmot River Estuary" is now available.

Although it was hoped that the assessment would obtain more quantitive information on the actual sedimentation rates in different sections of the estuary the report does

provide some interesting conclusions. The report indicates that the primary source of sediment was from post settlement land erosion that produced accumulation in the range of 2-5 metres of sediment over the 170 year period.

Glenfinnan - O'Keefes Lakes Monitoring Program

Regular monitoring of Glenfinnan and O'Keefes has been ongoing for a number of years. The principle objective is to evaluate the long term effect of the addition of agricultural limestone to the lake water to restore and maintain pH levels within an acceptable range. Lime was last applied to O'Keefe's Lake in the fall of 1987 and the monitoring information has indicated that further application is not yet necessary.

Shellfish Growing Area Surveillance Program

The Federal/Provincial Cooperative Shellfish Growing Area Surveillance Program was active during the summer and fall of 1990. There are two types of water quality surveys carried out in shellfish growing areas under this program. Reappraisal surveys of open growing areas involve five sampling runs at permanently established stations. The purpose of this type of survey is to assure compliance with the criteria for an open area on an annual basis and to detect any deterioration in water quality that could occur due to new or existing point or non-point sources of pollution. A comprehensive study on the other hand involves a detailed assessment of the water quality of an entire basin or river system. The objective of this type of survey is to properly locate or in some cases re-locate growing area closure lines. Comprehensive surveys require a minimum of fifteen sampling runs at a predetermined number of sampling stations.

During 1990, forty-three areas were subject to reappraisal surveys while seven areas were subject to comprehensive assessment. The work of two field crews and one laboratory person involved the collection and microbiological analysis of 4,068 samples. This number of samples represents a 25% increase over last year.

The shellfish growing area program is jointly sponsored by Environment Canada and this Department. Salaries, materials, supplies and travel are funded by the Federal government, while the day to day supervision, laboratory facilities, field sampling equipment and data management are covered by the province.

Shore Zone Sand Removal Program

In 1990, regulations pertaining to sand mining activities were revised and put in force. The extraction of sand from Prince Edward Island beaches for use in the commercial manufacture of concrete showed a slight increase over last year.

During the year a total of 53 permits were issued at 18 different removal locations throughout the province. The calculated quantity extracted was 43,559 cubic metres as compared with 42,000 for the previous year.

It was a relatively quiet year in terms of public disagreement with the department's sand removal policy with no major complaints received. Sand removal sites generally are considered to be in very good condition with no notable impact of the closely supervised sand removal activity. The only exception would be at the Murray Harbour North site where because of the removal of the old wharf structure there has been a significant re-adjustment in the shoreline alignment over the past two years. This re-adjustment is not considered to be the result of sand removal activity.

There were five (5) successful prosecutions involving the removal of sand from beaches without a permit.

Watercourse Alteration Program

The Marine Section is responsible for the administration of Section 10 of the Environmental Protection Act. This Section provides the legislative authority to protect and control any type of alteration in the province's watercourses and wetlands. Before undertaking an alteration of any kind the proponent is required to obtain a watercourse alteration permit.

During the year a total of 264 applications were reviewed. This number represents a 100% increase over 1989.

All watercourse and wetland alteration applications are referred to the Watercourse Alteration Advisory Committee formally established by the Minister to assess such alterations.

During the year there were eleven (11) successful prosecutions, with eight (8) others still under investigation. Also, eight (8) restoration orders have been issued in connection with the above mentioned incidents. The department will be undertaking a campaign to better inform contractors and the general public as to the requirements of the Act in relation to watercourse and wetland alterations.

Shoreline Erosion

Staff were active during the year in a number of aspects related to shoreline erosion. A number of shorefront erosion problems were investigated at the request of property owners.

Thirteen (13) new erosion monitoring stations were established along the north shore between Rustico and Bayview bringing the island wide total to sixty (60).

Measurements will be updated at all stations during the summer of 1991.

Environmental Services Laboratory

The Environmental Services Laboratory operated by this Section deals primarily with the chemical and microbiological analyses of water, wastewater and food products. All microbiology and some partial chemistry work is carried out at facilities located on the 5th floor of the Sullivan Building while the water chemistry analysis is conducted by the Dept. of the Environment personnel at the Provincial Department of Agriculture Laboratory.

The following table provides a summary of the number of analyses carried out of each parameter or group of parameters.

Laboratory	Type of Analysis	Number of Analyses
Environmental Services Lab		
	Water (microbiology)	
	- coliform, filtrations	10,373
	- fecal coliform, filtrations	4,181
	- coliform, multi tube	175
	- fecal coliform - multi tube	848
	- pseudomonic	170
	- aerobic colony count	1
	- staph aureus	21
	- fecal streptococci	3
	- misc	16
	- fecal coliform - A-1 method	4,068
	Total	19,856
	Water (Chemistry)	
	- chemical indicator parameters (TDS, Fe, Chlorides, $N0_3$, etc)	8,800
	Food (microbiology)	
	- coliform	100
	- staph aureus	86
	- pH	123
	- bacillius cereus and salmonello	45
	- aerobic colony count	267
	- yeast and mold	171
	Total	792
	Environmental swabs	386

Wastewater (BOD,SS,dye Tracers)	2,892
Marine waters (chlorophyll, pheophytin, org./ inorg. C)	1,845
Total Environmental Services Lab	34,571

Agriculture Lab	Type of Analysis	Number of Analyses
	Water Chemistry	
	- major ions (Na,Ca,Mg,K,Cl,SO_4,T. Alk)	17,186
	- heavy metals (Cu,Pb,Zn,Cd, Ni, Cr)	13,296
	- trace metals (Mn,Fe,ext & dis)	4,980
	- nutrient parameters (total & inorg. P, NO_3-N, NH_4, Si)	8,216
	Total	44,308

The total number of analyses carried out at the Environmental Services Laboratory was very similar to 1989 while there was an approximate 10% increase in the water chemistry output at the Agriculture Lab.

Laboratory staff participated in training courses and workshops in order to stay abreast of up-to-date analytical procedures.

Other Activities

The Marine Section is responsible for the administration of Section 22 and 23 of the Environmental Protection Act which deals with protection of sand dunes and beaches. Emphasis of the legislation is directed at controlling activities such as motor vehicles on sand dunes and beaches and destruction of cover vegetation. There were three successful and three unsuccessful prosecutions under Sections 22 and 23 during the year.

Twenty-one dredge spoil disposal applications were reviewed as part of the Ocean Dumping Control Act referral process. A number of inland disposal applications were also dealt with by this Section. Several on-site inspections were carried out with Public Works Canada.

Several meetings of the Atlantic Shellfish Growing Area Classification Committee were attended and several meetings of the P.E.I. Working Group on Shellfish were held during the year to deal with matters related to the surveillance and classification of shellfish growing areas.

Staff of the Section were actively involved in the administration and supervision of projects under the Canada/P.E.I. Water Management Agreement.

EMERGENCY MEASURES ORGANIZATION

The Emergency Measures Organization is responsible for the development and co-ordination of an overall provincial program of preparedness for the response to emergencies and disasters.

The division provides planning, training and advisory services for both provincial and local government authorities and industry. It actively participates when an emergency or disaster situation develops beyond the capacity of the local government, and administers special assistance programs authorized by the Government of Prince Edward Island following emergencies and disasters.

Division staff are specially qualified and experienced in preparing plans and procedures, co-ordinating resources and providing advice on problems of emergency evacuation, welfare, health and rehabilitation. Specialists from other government departments provide resource advice and assistance when required.

Joint Emergency Preparedness Program (JEPP)

Funded at approximately $ 6.5 million annually, the Joint Emergency Preparedness Program (JEPP) represents 35% of EPC's annual budget and allows the Government of Canada, in consultation and co-operation with Provincial and Territorial Governments, to contribute to provincial and municipal projects that enhance the national capacity to respond to emergencies.

Projects submitted by the provincial and territorial response organizations are evaluated by EPC Regional Directors and senior managers according to established criteria. The financial contribution of the Federal Government is negotiated separately for each project. When approved, the funds are made available once the agreed conditions are met.

As in the past, activities favor the development and evaluation of emergency plans, training programs, and the purchase of communications and response equipment.

Through the assistance of JEPP, Emergency Measures Organization promoted the following projects in the past year:

JEPP # 9-4

Basic ongoing Prince Edward Island Emergency Measures Organization (peace & war) 5 Year Agreement and Readiness Plan. $ 111,011

JEPP # 11

Specialized Emergency Training for Fire Services Personnel. Completed. $ 104,700

JEPP # 12

Integrated Mobile Radio Trunking System. Cost Shared between Federal/Provincial Governments & Island Tel. Completed. $3,480,000

JEPP # 13-9

Public protection, continuity of Government Management of Plans Wartime Arrangements. Cost shared between the Federal/Provincial Governments. $ 35,500

JEPP # 15

Upgrading of P.E.I. Community/Provincial Shelter Plan. Completed. $ 62,861

JEPP # 18

Charlottetown Mutual Aid Response Vehicle. A Cost Shared Agreement between the Federal Government and the Municipalities of Charlottetown, Parkdale, Sherwood, Crossroads and North River. Completed. $ 62,408

JEPP # 19

Emergency Generator Three Oaks Evacuation Centre. Cost Shared between the Federal Government and Unit # 2 School Board. $ 44,000

JEPP # 22

New Glasgow Mutual Aid Emergency Response Vehicle. Cost Shared between the Federal Government and the New Glasgow Mutual Aid area. Completed. $ 73,870

JEPP # 24		
	Kensington Mutual Aid Area Emergency Response Vehicle. A Cost Shared Agreement between the Federal Government and the Municipality.	$ 81,000
JEPP # 25		
	Summerside EOC Emergency Generator Cost Shared between the Federal Government and the Municipality.	$ 44,000
	TOTAL	$4,099,350

Emergency Response Vehicles

The Mutual Aid Area of Charlottetown, North River, Parkdale, Sherwood and Crossroads have completed their project for a new Emergency Response Vehicle equipped with life saving and specialized equipment to respond to chemical hazardous goods incidents.

The New Glasgow Mutual Aid Area has completed their project for a new Emergency Response Vehicle equipped with the same type of equipment.

The Kensington Mutual Aid Area has received a new Emergency Response Vehicle equipped with the same type of equipment.

Emergency Response Vehicles and equipment such as this, are spearheaded by Emergency Measures Organization in co-operation with the Municipality/Fire Department. Funding is provided under terms of the Federal Governments Joint Emergency Preparedness Program (JEPP) and the Provincial Government.

Emergency Generators

With financial assistance from the Federal Joint Emergency Preparedness Program (JEPP), the Emergency Measures Organization assisted in having Emergency Generator installed in the Three Oaks Senior High School. This school is designated as the prime evacuation centre for Regional Area Two in time of emergency or disaster. (Project Completed).

The Town of Summerside received approval for funds to install an emergency generator to supply emergency power for Area # 2 EOC located in the basement of the Summerside Police Department. This generator will serve both EMO and the Town officials during an emergency.

Exercises

Over the past year, several exercises have been held across the province to test the operational procedures of all Emergency Response Agencies that would normally respond to an emergency or disaster and at the same time exercise the internal emergency plans of the local hospital.

Once again, we received excellent response and co-operation from our volunteers who staff our Provincial Emergency Plan, as well as that of the volunteers involved in Municipal Emergency Plans.

EMO participated jointly with Transport Canada in a major On Airport Air Crash exercise named Blue Jay II at the Charlottetown airport.

Other exercises held include:

- Exercise Highroad XVIII School Bus, O'Leary Area
- Exercise Highroad XIX School Bus, Montague area
- Transportation of Dangerous Goods Exercise, Miscouche area
- 8 Regional Table Top exercises (Re Provincial Emergency Plan)
- 1 Municipal Table Top exercise in Cornwall
- 1 Municipal Table Top exercise in Crapaud
- 1 Major Explosion exercise with evacuation at Three Oaks Senior High School

Municipal Emergency Planning

During the past year, meetings were held with 58 municipalities/Communities to discuss and upgrade Emergency Planning on Prince Edward Island. Planning for emergencies, whether natural or man-made, is the duty of all authorities with responsibility for public safety.

Training

Approximately 60 EMO volunteers and emergency response personnel received formal training at the Canadian Emergency Preparedness College, Arnprior, Ontario during the past year. Listed below are some of the specialized courses offered at the College:

— Plans & Operations Peace Course
— Emergency Operations Course
— Emergency Site Management Course
— Exercise Design Course

There are also more specialized courses and workshops offered at the college throughout the year. Anyone wanting information on these or any of the courses offered, please contact this office.

With the ever increasing number of hazardous substances being transported throughout our province each year, we realize that more training has to be given to emergency response agencies and the public to assist them in dealing with an emergency of this nature.

This past year approximately 104 individuals from across the province received formal training on the approach and handling of hazardous material.

Public Awareness

This year EMO has been offering a program consisting of a 30-minute video drama and discussions on emergency preparedness to the schools across our province.

The material provides opportunities for students to examine the effects of emergency situations on people before, during, and after an emergency. Students explore natural and human-made disasters that can result in injury, both physical and emotional, and the loss of life and property. Students are made aware that although most emergencies cannot be fully controlled, their disastrous effects can be reduced through effective planning and preparation.

National Emergency Agencies (NEA)

The Provincial component of three of the eleven National Emergency Agency Plans have been completed with two plans expected to be finalized in 1991.

Ground Search And Rescue

All appropriate agencies agreed to the formation of a Provincial Ground Search and Rescue team. This team is expected to be operationally capable this year.

Federal/Provincial Conference Of Senior Officials On Emergency Preparedness

Prince Edward Island attended the National Conference of Ministers and Senior Officials on Emergency Preparedness. This event took place in September 1990 in Barrhead, Alberta.

Committee Of Atlantic Emergency Measures Organization Directors

The committee of Maritime EMO Directors continued its work. It is scheduled to meet quarterly to discuss items of mutual and common interest in the Maritime region.

Marine Spill Emergency Response Plan

Work has been completed on preparation of a Marine Spill Support Plan for the Province in support of the Canadian Coast Guard.

This plan will integrate with a regional plan to deal with a marine spill in the waters off Prince Edward Island.

Emergency Operations Centres (EOC)

During the past two years, new Emergency Operations Centres were procured in the Souris, Montague, Summerside and Charlottetown areas. These centres are in the process of being equipped with the new Provincial Integrated Communications System Radios, and other furnishings as necessary.

Emergency Plans

The Government Departmental Emergency Plans have been finalized for ten provincial departments with the remaining plans expected to be completed in the near future.

Medical Emergency Response Team (MERT)

An informal agreement was reached with the St. John Ambulance to form a Medical Emergency Response Team to perform triage and life saving first aid at mass casualty incidents. This team is to become official in 1991.

Emergency Transportation Team (ETT)

Plans are under way for the formation of an Emergency Transportation Team comprised of snowmobiles, four wheel drives and All Terrain Vehicle owners. The purpose of this team is, "to provide essential transportation services to residents in the event of a major storm where no other means of transportation is feasible".

FISH AND WILDLIFE BRANCH

Programs and activities of the Fish and Wildlife Branch are directed at the conservation, protection and enhancement of the Province's wildlife and sport fish resources, providing recreational and economic opportunities.

Interest and enjoyment in these renewable resources is shared by a majority of the population. In addition to the obvious importance of fish and wildlife to anglers, hunters and trappers, a 1987 survey determined that 92 percent of the Province's residents participated in one or more wildlife-related activities. The survey determined that residents spent $19.5 million on wildlife-related activities on their own property.

This report summarizes projects and activities in the major program areas of the Branch.

Fisheries

Habitat:

The Fish and Wildlife Branch is responsible for the maintenance and management of approximately 90 dam sites in the Province. Inspections of these sites are carried out on a continuing basis and minor repairs were made to several sites in 1990. Major fishway repairs were carried out at Knox's Pond, Montague and Parsons Pond, Emerald during the summer of 1990.

A fishway was completed at MacLean's Pond, Vernon River in 1990. This fishway will provide access for anadromous fish to a large part of the Vernon River water system. Ducks Unlimited Canada provided financial and engineering assistance.

Major construction scheduled for Gordon's Pond, Montrose in 1990 had to be abandoned due to a land ownership conflict. The land ownership question is in the process of being resolved with Gordon's Pond tentatively scheduled for construction in 1991. Environment Partner's funding has been dedicated to this project, while Ducks Unlimited have provided engineering services and, as well, will contribute financial support.

Several habitat improvement projects were provided technical and material assistance, primarily in cooperation with and in support of the Young Environmentalists Program. These included a large gabion installation on the Morell River below Leard's Pond to stabilize an eroding stream bank.

Upstream movements of fish were monitored at several fishways during the 1990 field season. The data collected provide information on the timing and size of sea-run salmonid populations, as well as other species, such as white perch, gaspereau and eels. During 1990, traps were operated at Bell's Pond, New Glasgow; Scale's Pond, Freetown; Millar's Pond, Kelvin; Officer's Pond, Suffolk; Knox's Pond, Montague; Old Maritime Electric Pond, Valleyfield. As well, traps at MacLean's Pond, Vernon and Robinson's Dam, Tyne Valley were operated for a brief period.

Stock Enhancement:

High quality rainbow trout fisheries were again supported in 1990 at O'Keefes and Glenfinnan Lakes with the stocking of 6,000 fall fingerlings from the Cardigan Salmonid Enhancement Center in each lake. Water quality in both lakes is monitored on a regular basis in cooperation with the Department's Marine Division.

During the months of May and June, approximately 6,000 yearling brook trout were stocked in nine pond sites throughout the Province.

During November, 30,000 fall fingerling brook trout were released at twelve sites across the Province. This stocking was divided on a county basis as follows:

Prince	-	11,000
Queens	-	14,000
Kings	-	11,000

These fish were off-spring of sea-run wild stock and are considered to be superior to traditional domestic strain.

The Fish and Wildlife Branch continued to support Fisheries and Oceans Canada's Atlantic salmon enhancement program in the Province by providing manpower to assist in the rearing of fish at the Cardigan Salmonid Enhancement Center. Two personnel were made available through the Department of Industry's Jobs for Youth program, while a seasonal technician was employed by the Branch.

The Fish and Wildlife Branch cooperated with Fisheries and Oceans Canada in an effort to determine the potential for a salt water recreational salmon fishery in St. Peters Bay. Efforts to angle fish in saltwater were unsuccessful again. It is doubtful whether a viable, salt water Atlantic salmon fishery will be realized in St. Peters Bay.

Sportfishing Survey:

A comprehensive socioeconomic survey of the recreational sports fishery will be completed in 1991. This is a cooperative project with Fisheries and Oceans Canada and will be the fourth survey of its kind to be undertaken. This survey is repeated every five years and demonstrates the recreational and economic benefits of the sports fishery on Prince Edward Island.

Surface Water Inventory

An inventory of major water systems continued in 1990 under the auspices of the Canada-P.E.I. Water Management Agreement with Environment Canada. This information is viewed to be extremely valuable to the future management of our surface water resource. There already have been demands for compiled information, reflecting the value of program.

A teacher's guide has been prepared to accompany a slide presentation dealing with surface water management on Prince Edward Island. This is due for release in early 1991 and should become a valued educational tool.

Upland Game

Forest management continued on Fish and Wildlife managed properties in 1990 in cooperation with the P.E.I. Forestry Division. Technical assistance from Montague Watershed Project staff facilitated the implementation of forest management plans. There is an urgent need for on-going technical assistance to plan and implement forest management practices consistent with good wildlife management principles on Branch managed lands. The Branch has approximately 12,000 acres of forest land requiring on-going management to optimize direct economic and recreational benefits.

The cooperative pheasant rearing and release program with the P.E.I. 4-H Council was continued in 1990 with 11 groups of 2-3 4-H members from various areas of the Province participating. Each group was given 24 chicks along with the necessary feed and information to rear chicks to release age. The following 4-H clubs were involved with this program in 1990 - Morell, Albany, Dunstaffnage-Marshfield, Ft. Augustus, Fortune, Millview-Vernon River, French River, Freetown, Elmsdale and Huskies (Tyne Valley) 4-H Clubs.

As in past years, the Earnscliffe Shooting Preserve was provided technical and financial assistance for its pheasant rearing and release operations. The preserve offers residents and non-residents the opportunity to pursue pheasants under natural field conditions.

The sharptail grouse introduction project was continued in 1990 and efforts to monitor its success were increased. An individual from the Souris area was retained to monitor the status of released birds and to attempt to locate breeding birds. Several positive sightings were confirmed in the Big Pond-Cable Head areas. A relatively large concentration of approximately 21 birds was located in the Greenwich area of Kings County. This is particularly encouraging and indicates that the birds have successfully reproduced in P.E.I. Monitoring will continue in 1991. A report was compiled detailing the history of this project and documenting all confirmed sightings.

Winter counts of gray (Hungarian) partridge are done on an annual basis, when snow conditions permit, to assess over winter survival and to provide an index of population size. In 1990, severe winter weather and a cool wet nesting season placed the partridge population under considerable stress, resulting in a closure of the 1990 Hunting Season for the species. The status of the gray partridge population will be further assessed in 1991.

Cooperative Watershed Management Project

In 1986, Wildlife Habitat Canada, together with a variety of government agencies and community organizations launched an intensive 5-year campaign to enhance, protect and preserve fish and wildlife habitats in the Montague/Valleyfield watershed complex. The project was designed to demonstrate to landowners and land resource agencies the multiple benefits of cooperative land use management. The basic premise is that man's use of the land, whether for agriculture, forestry or roadways can affect the quantity and quality of wildlife habitat and therefore the kind and numbers of plants and animals occupying those habitats. Long term forest hygrading, accelerated roadside and agricultural erosion, hedgerow removal, spruce bud worm infestation, bacterial contamination have collectively altered environmental quality. In particular, rivers, streams and estuaries have become chocked with debris and sediment, adversely affecting recreational and commercial pursuits such as canoeing, swimming, sport fishing and shellfish harvesting.

To correct the situation, a team of biologists and technicians and summers students undertook the job of restoring the Montague/Valleyfield watershed to its former potential.

In 1990, the project supported thirty-seven part-time and three full-time employees, hired through funds from Wildlife Habitat Canada, P.E.I. Department of Industry, Canada Employment and Immigration, P.E.I. Conservation Strategy and the Young Environmentalists Program. Since 1986 work on the Montague/Valleyfield watershed has resulted in jobs for 200 people and expenditures approaching $2 million.

A number of milestones were reached in 1990 including:

- establishment of two interpretative walking trails (Keith Mill's Trail and Old Mill Trail),
- stocking 92,000 salmon fingerlings in the Valleyfield River,
- the return of 40 large salmon to the Valleyfield River,
- a doubling in number of sea-run brook trout returning to the Montague/Valleyfield River.
- completion of stream clean-ups in the Montague and Valleyfield Rivers and French Creek,
- reduction in sedimentation from roadways and farmlands, and
- managing 3,500 hectares of privately owned woodlands.

With an acknowledgment that Wildlife Habitat Canada funding support is due to expire in March, 1991 a group of concerned landowners have taken on the task of ensuring the continuation of the program, forming a cooperative. The Montague Watershed Enhancement Cooperative boasts a membership of 14 individuals.

In terms of the amount of work accomplished and the positive feedback from landowners, Government and the sponsor Wildlife Habitat Canada, 1990 was a very successful year.

The accompanying table conveniently summarizes project activities to date.

PROJECT SUMMARY I

Final Report of the Management Objectives and Goals of the Co-operative Watershed Management Project.

Habitat Component	Management Objective	Annual Goal	Project Goal (5 years)	Amount Completed (Apr. 90 - Dec. 90)	Five Year Project Totals (1986 - 1991)
Hedgerow	Established	10 km	38.5 km	0.65 km	31.53
	Rejuvenated	30 km	90 km	0.6 km	16.05
Stream Improvements	Obstruction Removal	5 km	25 km	14.1 km Vallerfield River 8.5 km French Creek 2.9 km Brown's Creek 2.7 km 26.4 km Maintenance	40.5
	Habitat Improvement	Log Deflectors	As required	1 km	
		Weirs	As required	9	
		Bridge Baffles	As required	2 (Brooklyn, Heatherdale)	
		Gabion Deflectors	As required	6 new, 4 upgraded	34
		Braided Channel Diversions	As required	2	
		Pool Diggers	As required	9 (Montague River)	15
	In-Stream Sediment Catchment Basins	5	Maintenance As required	3	5

	Culvert Installation	As required	As required	2	
	Boundary Line Establishment	As required	As required	2.42 km	
	Plantation	Manual	100 ha	7.0 ha	
	Maintenance	Chemical	As required	8.45 ha	
	Site Preparation	As required	As required	65.0 ha	
	Reforestation	As required	As required	65 ha	
	*Fill Planting	As required	As required	0	
Crown Land Management - Montague Watersned	Harvesting	As required	As required	ha HWD ha SND	
	Site Preparation	As required	As required		
	Reforestation	As required	As required		
	Stand Improvement	As required	As required		
Highway Improvement	Erosion Control	Roadside Sediment Traps	As required	1 new 20 Maintenance	21
		Diversion Channel	As required	1	4
		Hydroseeding	As required	2.3 km	10.3 km
Riparian Zone Management	Tree Salvage	5 km	25 km	1.35 km	
	Reforestation	HWD	25,000	1200	
		SWD	25,000	1560	
		Beaver Management	-	1000 aspen	1000 aspen
	Slash Pile Creation		-	1.35 km	
	Bank Stabilization	High Grass Mix	25 km	0	34.02 km
		Read Canary Grass	25 km	0	34.02
	Fencing	1.0 km	3 km	3.2 km 2.3 km maintenance	5.5 km
Forest Management (FRDA Private Land Management Program)	Harvesting	Softwood 60 ha	300 ha	59.73 ha	
		Hardwood 5 ha	25 ha	1.88 ha 72.23 ha	
		Mixwood 15 ha	75 ha	10.62 ha	
	Stand Improvement	Commercial HWD 20 ha	100 ha	13.83 ha	
		Commercial SWD 5 ha	25 ha		
		Pre-Commercial HWD 5 ha	25 ha		
		Pre-Commercial SWD 10 ha	50 ha	24.0 ha	
	Road Construction	As required	As required	6.65 km Class I 0 km Class II km maintenance	
	Bridge Construction	As required	As required	2	
Agriculture	Soil and Water Conservation Projects	Diversion Territory	As required	1	2
		Outlet Stabilization	As required	1	1
		Grassed Waterway	As required	1	1

* Fill Planting: reforestation on established plantations where Hylobis weevil caused damage

Migratory Birds

Habitat:

The Waterfowl Habitat Management Program consists of the development and enhancement of wetlands for both wildlife habitat and public use. For the past twenty years, Ducks Unlimited Canada, in cooperation with the Fish and Wildlife Branch and private landowners, has developed and improved 96 marshes on Prince Edward Island, totalling 7,006 acres and including 173.3 miles of shoreline.

The Branch continued to sow wild rice on newly flooded impoundments and assessment of previous plantings continued. The program to provide wood duck box plans and information to groups and individuals continued in 1990. The Branch also erected new boxes and maintained and replaced old ones in a number of wetlands during the year.

Eastern Habitat Joint Venture:

Wetlands conservation is the major goal of the Eastern Habitat Joint Venture under the North American Waterfowl Management Program. The EHJV Five-Year Plan for P.E.I. identifies expenditures of 2.7 million dollars for securement and enhancement of wetlands from 1990 through 1994. A fifteen year plan stating specific habitat goals is now being written.

In 1990, four "second step" projects were approved for acquisition and development, while a Program Manager was hired in November. To date, 27 acres of marsh have been purchased at Tryon River in cooperation with the Island Nature Trust. In addition, 100 acres were purchased on Malpeque Bay. Contact with landowners of two other wetlands has begun.

Management of the "first step" Grove Pine/Big Brook Project continued in 1990 with the completion by Ducks Unlimited Canada of two impoundments totalling 130 acres and level ditching of dry areas in both fresh and brackish marsh to create more habitat for breeding pairs of waterfowl. Ducks Unlimited Canada, the Souris Wildlife Federation and Young Environmentalists cooperated with the Fish and Wildlife Branch in erecting 20 wood duck nest boxes. As well, woodland stands were cover mapped preparatory to forest management of the area.

Surveys/Banding:

Waterfowl breeding pair and brood surveys were conducted again in 1990. The surveys provide an annual index of waterfowl production for wetlands across the Province and aid in regulatory management decisions. The surveys are conducted cooperatively with the Canadian Wildlife Service, with the Service providing supplementary field crews and data analysis. An analysis of data collected over a six year period indicated the need for regulatory changes designed to enhance the survival of locally produced blacks ducks. In response, the opening of the hunting season for black ducks was delayed two weeks in 1989 and 1990. As a result of the delayed season, the black duck kill was cut by 40% in 1989 and the 1990 spring breeding pair count increased by 30%.

Open water around bays, estuaries and rivers of P.E.I. provides winter habitat for waterfowl. Post hunting season surveys are conducted in January by states and provinces in the Atlantic flyway to determine the status of waterfowl populations. In mid-January, 1990, 2,400 black ducks, 2,400 goldeneye and 500 mergansers were observed during the mid-winter waterfowl inventory flight.

The Branch co-operates with the Canadian Wildlife Service and the Atlantic Waterfowl Council in banding waterfowl to determine migration routes, harvest patterns and mortality rates for ducks and geese. Branch staff were involved in banding waterfowl that overwinter in the Province. The results of this winter banding are summarized below.

Summary of Winter Banding
Prince Edward Island
1990

Species	Male	Female	Total
Black Duck	384	132	516
Mallard	10	4	14
Black X Mallard Hybrid	16	-	16

Banding Period: 12-27-89 - 03-09-90

Efforts were also directed at banding locally produced ducks with the assistance and cooperation of the Canadian Wildlife Service. The results are summarized below. Of note was the banding of 125 black ducks, 331 blue-winged teal, 98 green-winged teal and 38 Gadwall during the July-August banding period.

Summary of Summer Banding
Prince Edward Island
1990

Species	Airboat	Base Stations	Total
Black Duck	98	27	125
Mallard	6	3	9
Hybrid (Bl X M)	-	-	1
Blue-winged Teal	238	93	331
Green-winged Teal	51	47	98
Ring-necked Duck	11	-	11
Pintail	12	9	21
American Wigeon	21	-	21
Shoveler	11	-	11
Wood Duck	7	3	10
Gadwall	38	-	38
Total	493	183	676

The Canada goose banding program continued during 1990 in cooperation with the Canadian Wildlife Service. A total of 142 geese were banded and neck collared to determine migration patterns and local movement. Banding occurred at a number of sites throughout the Province.

The banding program also includes activities related to migratory birds other than waterfowl. Five young ospreys were banded in a continuing effort to gain information on migration patterns and mortality factors for young fledged from Island nest sites. This brings the total number banded over the years to 325. In addition, 11 bald eagles were banded in 1990, the largest number ever banded in a nesting season.

The breeding census of the woodcock, an important game bird species in eastern North America, is conducted annually throughout its range. Results of Prince Edward Island's survey indicated a decline in the breeding index by 40% in 1990, with unfavorable weather conditions for surveying contributing to the results. This conforms to observations for the Maritime Region.

Surveys of all cormorant colonies were conducted in 1990 in a continuing effort to monitor changes in the status of both species to determine future management needs. Surveys of colonial nesting birds were conducted for Boughton Island in 1990. Surveys were conducted in response to the proposed development of Boughton Island and the requirement to develop a management plan that would ensure the protection of nesting sites and the perpetuation of the species frequenting them.

Lead Shot Survey:

A study to determine the quantity of lead shot deposited in wetlands in the Province and to assess the effect of spent shot on waterfowl commenced in 1988 and continued through 1990. Sediment samples in two heavily hunted wetlands, blood samples from both overwintering waterfowl and locally produced birds, and gizzards from hunter harvested birds were collected. In 1990, a concerted effort was directed at gizzard collections from 3 "hotspots". The study was conducted by a M Sc. candidate at Acadia University and was supported by the Fish and Wildlife Branch and the Canadian Wildlife Service. Results and recommendations are contained in a final report soon to be released.

Wetlands Protection and Enhancement Program

The Wetlands Protection and Enhancement Program is a co-operative wetlands conservation program designed to identify and conserve waterfowl migration and wintering habitats, and to enhance freshwater wetlands for waterfowl production. The program addresses the loss and degradation of wetlands as part of a continental waterfowl recovery plan, and meets the more specific goals of the Eastern Habitat Joint Venture under the North American Waterfowl Management Plan. The program began in 1987 and is jointly sponsored by Wildlife Habitat Canada, Ducks Unlimited Canada, and the Canadian Wildlife Service, with core funding being provided by Wildlife Habitat Canada.

Efforts to identify and enhance wetlands continued in 1990. Surveys of waterfowl wintering sites were conducted and in April aerial surveys of migrant waterfowl contributed to a data file on 49 important migration habitats. Twenty-two freshwater wetlands across Prince Edward Island were evaluated and enhancement efforts recommended. As well, implementation of enhancement plans previously recommended for 77 freshwater

wetlands was continued with the cooperation of the Charlottetown Ducks Unlimited Committee. Marsh vegetation transplants were a major part of this program, as was the installation of wood duck nest boxes. To date, approximately 250 nest boxes have been installed through the efforts of the P.E.I. Wildlife Federation, Ducks Unlimited Canada and the Fish and Wildlife Branch.

Staff continued to involve communities and individuals in wetland conservation in 1990 and a more directed approach to wetland stewardship is now being defined. In 1991, the Wetlands Protection and Enhancement Program will be replaced by a Wildlife Habitat Canada funded stewardship program which will more fully contribute to the goals of the Eastern Habitat Joint Venture.

Furbearers

Branch staff continued to monitor, develop and improve the wild fur industry in the Province through trapper education, research and management. Total value of wild fur exported from the Province for the 1989-90 season again decreased sharply due mainly to the continual reduction in fur prices. The following tables summarize the annual harvest from 1979-1990.

1990 was the fourth year for mandatory education for all first-time trappers. One course for all of Prince Edward Island was conducted in October, with only one new trapper receiving certification. Courses are conducted jointly by the Prince Edward Island Trappers' Association and the Fish and Wildlife Branch. Extremely low pelt prices resulted in little interest in trapping in 1990.

Although valuable for fur and, more importantly, for creating wetland habitat, beaver populations must be properly managed to prevent over population and subsequent damage to roads, woodlots and agricultural land. Information on sex, age and reproduction is collected annually for beavers harvested and used in conjunction with population indices and harvest figures to determine annual trapping seasons.

During the year, Fish and Wildlife personnel continued to co-operate with Department of Transportation and Public Works staff in the control of beavers at highway-stream intersections throughout the Province. In this regard, 1990 was a busy year with extra personnel employed until the end of November (freeze-up).

P.E.I. Wild Furs Exported and Total Value by Species, 1980 through 1989

Species Value	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90
Beaver	390	327	700	289	378	476	485	538	538	397	325
(value)	(19,399)	(10,284)	(13,454)	(5,699)	(7,311)	(14,580)	(21,272)	(28,611)	(17,490)	(14,749)	(8,856)
Muskrat	5,788	7,661	7,563	8,527	9,886	8,964	7,269	6,083	5,712	7,101	4,968
(value)	(53,192)	(70,864)	(47,496)	(35,302)	(57,339)	(51,274)	(31,547)	(38,992)	(35,072)	(24,569)	(9,588)
Red Fox	944	791	965	995	994	1,140	892	939	722	752	508
(value)	(90,964)	(78,127)	(77,538)	(68,794)	(79,013)	(69,962)	(46,268)	(62,753)	(30,093)	(19,529)	(8,570)
Silver Fox	38	37	26	49	46	27	30	34	33	42	18
(value)	(6,486)	(7,194)	(4,052)	(6,891)	(6,785)	(4,730)	(3,351)	(4,766)	(3,955)	(2,954)	(743)
Cross Fox	119	91	119	119	85	85	46	61	34	59	23
(value)	(17,871)	(10,474)	(14,801)	(15,278)	(10,614)	(11,367)	(3,391)	(5,859)	(2,343)	(2,609)	(529)
Raccoon	2,001	1,730	2,024	1,336	1,119	1,405	1,284	1,473	1,510	403	181
(value)	(58,329)	(43,527)	(46,754)	(20,788)	(16,673)	(27,187)	(25,192)	(31,611)	(16,535)	(1,576)	(464)
Mink	805	944	909	635	718	1,147	866	865	809	573	442
(value)	(17,042)	(22,788)	(20,507)	(11,297)	(17,620)	(31,370)	(21,355)	(33,242)	(29,529)	(18,623)	(9,035)
Red Squirrel	94	62	106	63	210	84	57	74	32	41	18
(value)	(83)	(54)	(60)	(47)	(74)	(34)	(12)	(21)	(18)	(4)	(3)
Weasel	12	29	76	10	15	45	24	36	26	12	21
(value)	(10)	(12)	(71)	(11)	(24)	(79)	(27)	(51)	(11)	(8)	(12)
Skunk	26	7	17	—	—	—	—	—	2	1	—
(value)	(53)	(19)	(44)	(-)	(-)	(-)	(-)	(-)	(4)	(3)	(-)
Coyote	—	—	—	—	1	—	1	—	1	2	5
(value)	(-)	(-)	(-)	(-)	(35)	(-)	(30)	(-)	(35)	(50)	(75)
Total value	$263,429	$243,343	$224,777	$164,107	$195,453	$210,583	$153,212	$202,227	$135,456	$85,574	$38,779

* Includes castoreum value.

Firearm Safety Program

In 1990, 11 firearm safety courses were held. Six of these were prehunting season, two were conducted in community schools and three were conducted as part of the high school curriculum. Three hundred and eight people enrolled in these courses with two hundred and eighty-three successfully passing. One bowhunter course was conducted with eight people graduating.

There were no recorded hunting accidents in 1990.

Two training workshops were conducted in 1990 to update volunteer instructors on new approaches to firearm safety training. In February, 1990, a workshop was held at the CP Prince Edward for Firearm Safety Instructors, while in November a steel shot workshop was held at Camp Buchan for members of the P.E.I. Wildlife Federation, Firearm Safety Instructors and Trap and Skeet Club representatives.

Licensing

Over 18,000 angling, hunting and trapping licenses are purchased annually. This figure does not represent the true participation of anglers and hunters due to a license exemption afforded resident commercial fishermen and their spouses, resident farmers and farm labourers and their spouses, and individuals under sixteen years of age. The number of licenses sold on a yearly basis is presented in the accompanying table.

In 1990, Federal Migratory Bird Hunting Permits again were available to hunters through the Branch's hunting license vendors. Previously, these permits were available only through postal outlets in the Province. This new system has proven to be more convenient for the hunting public, as well as a benefit to license vendors. Vendors issued 2,196 of the over 5,000 permits issued annually in the Province.

Violation Summary for the Period 1986 - 1990 Inclusive

Enforcement in 1990 resulted in 93 violations being registered by enforcement staff under the various acts regulating the conservation and protection of fish and wildlife in the Province. A summary of violations for the past 5 years is presented below.

VIOLATIONS	1986	1987	1988	1989	1990
Fishing without a license	12	21	11	16	17
Fishing while suspended	-	1	-	-	-
Fishing out of season	4	1	-	10	14
Fishing with more than one line	2	3	1	-	4
Fishing in fishway	-	-	-	6	1
Untagged Salmon	-	-	1	2	-
Spearing Salmon	-	-	-	1	-
Using bait in fly fishing area	-	-	-	-	3
Jigging for sports fish	1	4	-	3	1
Illegal net	-	-	-	1	-
Hunting without a prov. license	-	2	3	6	-
Hunting out of season	3	3	2	5	4
Hunting without a Federal Permit	1	5	2	10	1
Hunting while suspended	1	-	3	-	-
No firearm safety certificate	2	5	1	5	2
Use of live decoys	-	-	-	-	3
Hunting on Sunday	1	-	-	-	-
Hunting at night	-	-	-	-	3
Hunting in WMA	4	1	1	1	-
Loaded firearm in vehicle	6	1	1	2	1
Exceeding daily bag limit	4	3	1	5	3
Baiting of waterfowl	7	4	9	5	-

Hunting with more than 1 shotgun	1	-	-	-	-
Hunting with unplugged shotgun	3	2	1	-	1
Illegal possession migratory birds	-	-	-	-	1
Illegal possession protected species	-	-	-	1	-
Illegal transport of migratory birds	-	-	-	1	-
Selling game birds	-	-	-	1	-
Trapping without a license	-	1	-	-	-
Traps out after close of season	-	-	1	-	1
No fur dealers license	2	-	-	-	-
Trapping out of season	2	1	-	1	-
No tags on snares/traps	1	3	-	-	1
Illegal trap set	-	-	-	1	1
Trapping within 10 ft. of beaver house	-	2	-	-	-
Trapping within a Provincial Park	1	-	-	-	-
Failing to exhibit beaver carcass	1	-	-	-	-
No permit for green hide	1	-	2	-	-
Shipping fur without an export permit	1	-	-	-	-
Trapping while suspended	-	-	-	-	1
Trespassing	1	-	2	3	1
Giving false information	4	5	3	5	2
Obstructing Conservation Officer	-	1	1	-	3
Assault Peace Officer	-	-	1	-	1
Pesticides too close to stream	1	-	7	2	2
Neglect to produce license	-	-	-	-	3
Load not securely fastened	-	-	-	-	2
Impaired	-	-	-	-	1
Lobster out of season	-	-	-	-	2
Driving without due care	-	-	-	-	2
Feed game to foxes	-	-	-	-	1
Motor vehicle on sand dune	-	-	1	4	2
Littering	2	-	-	4	1
Illegal excavation pit	2	2	-	-	0
Illegal sand removal	-	-	-	-	1
Sand dune alteration	2	2	-	1	1
No stream alteration permit	-	1	-	2	5
Off highway vehicle on highway	-	-	1	-	-
Off highway vehicle not registered	-	-	2	1	-
Carrying restricted weapon	-	-	1	-	-
Possession of narcotics	-	-	1	1	-
Illegal possession of liquor	-	-	-	1	-
TOTALS	71	71	60	106	93

1988 - 1989 P.E.I. Fur Harvest, Comparison with Previous Year and with 10 Year Average

	1988 - 1989			1978 - 1988			10 Year Average 78-79 thru 87-88			Harvest '88-'89 from '87-'88 %	Harvest '88-'89 from 10 year Average %
	Number	Value	Average	Number	Value	Average	Number	Value	Average		
Beaver	397	14,749	37.15	538	17,490	32.51	422.3	14,544	34.44	- 26	- 6
Muskrat	7,101	24,569	3.46	5,712	35,072	6.14	7,609.9	45,071	5.92	⅓ 24	- 7
Red Fox	752	19,529	25.97	722	30,093	41.68	913.6	68,300	74.76	⅓ 4	- 18
Silver Fox	42	2,954	70.34	33	3,955	119.48	36.1	5,304	146.93	⅓ 27	⅓ 16
Cross Fox	59	2,609	44.22	34	2,343	68.90	88.0	10,742	122.07	⅓ 74	- 33
(Total Fox)	(853)	(25,092)	(29.42)	(789)	(36,391)	(46.12)	(1,037.7)	(84,346)	(81.28)	⅓ 8	- 18
Raccoon	403	1,576	3.91	1,510	16,535	10.95	1,418.4	32,161	22.67	- 73	- 72
Mink	573	18,623	32.50	809	29,529	36.50	837.3	21,645	25.85	- 29	- 32
Red Squirrel	41	4	.10	32	18	.56	85.4	45	.53	⅓ 28	- 52
Weasel	12	8	.66	26	11	.42	35.5	40	1.13	- 54	- 66
Skunk	1	3	3.00	2	4	2.00	5.6	13	2.32	- 50	- 82
Coyote	2	50	25.00	1	35	35.00	.5	15	30.00	⅓100	⅓300
TOTAL VALUE		$ 85,574			$135,456			$197,960		- 37%	- 57%

Prince Edward Island — Canada
Statistics
Angling, Hunting and Trapping Licenses

Season	Resident Angling	Non Res. Angling	Courtesy Res. Ang.	Salmon	Resident Hunting	Non Res. Hunting	Resident Trapping	Junior Trapping	Total Sold	Revenue
1985	10,740 ($5)	1,341 ($12)	1,649 (N/C)	117 ($5)	4,477 ($6)	575 ($25)	361 ($ 7)	99 ($3)	19,359	$114,438
1986	10,619 ($5)	1,547 ($12)	1,642 (N/C)	279 ($5)	4,354 ($6)	696 ($25)	365 ($ 7)	85 ($3)	19,587	119,388
1987	9,674 ($7)	1,272 ($15)	1,638 (N/C)	461 ($7)	4,000 ($7)	908 ($35)	342 ($10)	48 ($5)	18,343	153,465
1988	9,177 ($7)	1,410 ($15)	1,667 (N/C)	719 ($7)	3,832 ($7)	1,082 ($35)	253 ($10)	26 ($5)	18,166	157,776
1989	9,804 ($7)	1,427 ($15)	1,650 (N/C)	646 ($7)	3,623 ($7)	1,250 ($35)	169 ($10)	18 ($5)	18,595	165,726